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NRO & USAF REVIEWS COMPLETED

MEMORANDUM FOR: Deputy Director (Research)

SUBJECT : B-Camera Failures

1. During the past sixty days, as you know, we have had five Hycon Camera B failures. [redacted] Since the third failure occurred, I have been very closely analyzing our problem. [redacted] of Hycon made a special visit to [redacted] and we have carefully checked the maintenance procedures and techniques.

2. All of our problems have been traced back to a failure of the vacuum solenoid which controls the application and release of vacuum pressure which holds the film against the platen when the shutter is open and releases it to allow the film to transport after the shutter is closed. The vacuum solenoid has found to be sticking, which, in turn, results in a jamming of the film in the take-up spool or a floating away of the film from the platen. During the past week thousands of cycles of solenoid operation have been tested, and this sticking has been determined to be a result of the cadmium plating in the solenoid sleeve transferring to the solenoid plunger, which, in turn, allows an electromagnetic field to be set up in the solenoid pulling the solenoid sideways against the sleeve and causing the binding. The cadmium liner has been replaced on ten solenoids by a nickel liner which should alleviate the problem. A 100,000 cycle test has been run without an incident of sticking. These solenoids are on their way by special courier to [redacted] Hycon has convinced me that this will solve the problem.

3. An attempt is being made to determine if the 4080th Strategic Wing has encountered this problem with a view towards seeing if there is any time relationship for this failure in view of its past reliability.

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Colonel Geary informs me that SAC has not run into this problem, but the Hycon people contradict this information by saying that they have had nine failures of this solenoid up to the present time. We shall continue to compare 4080th's experience with ours. In the meantime, I am quite hopeful and confident that we shall find the trouble.

have found

JACK C. LEDFORD
COLONEL, USAF
Assistant Director
(Special Activities)

AD/OSA:JCL:jr

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